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verge of the barely visible. For instance, examining a particular line to which Rowland assigns the intensity and character denoted in his notation by the symbols 0000 N d ? (meaning one of the faintest lines, hazy and suspected of duplicity) on the excellent photograph by Higgs, I find this line to be invisible throughout a large part of its extent; but at a particular spot on the spectrogram the line comes out clearly double, then disappears, and is only seen again as a faint nebulous spot at another point in the line. Here the variations of sensitiveness at different points on the same photographic plate are responsible for changes from the clear definition of a close double, to invisibility. How absurd would be the proposition that this particular line must be dropped from the list of acquired data of solar spectroscopy, because it may fail to appear on a given plate! A fact of science which is difficult to determine, being once acquired, is not overturned because of failure to reproduce it. If the previous determination is satisfactory, the only assignable weight which can be given to the failure is zero.

It is quite possible that the renewed failure of Campbell and Albrecht to secure positive evidence of either water-vapor or oxygen in the Martian spectrum⁵ is to be attributed to photographic difficulties; but the influence of the high dilution, that is to say, of the greater altitude and lower pressure of the Martian atmosphere, should not be overlooked.

We know from the behavior of different emission lines in the spectrum of the same element under varying conditions of temperature, pressure or mode of electrical excitation, that individual lines, even when very strong, may disappear at the same time that weaker lines are reenforced. These and other variations are to be expected in the lines of absorption also. Before the significance of the absence of particular spectral lines can be determined, a critical study of the causes of their variation needs to be made; and if, in addition, the lines are very weak and barely capable of being photographed, the uncertainties of the photographic process must also be considered.

⁵ SCIENCE, June 24, 1910, p. 990.

In *Lick Observatory Bulletin*, No. 169, Professor Campbell subscribes to the opinion, held by Vogel and Keeler, "that high resolving power was not necessary, or even desirable, in visual observations of spectra no brighter than those of Mars and the moon." This of course does not necessarily apply to photographic spectra; but we may inquire whether, owing to a broadening and weakening of individual absorption lines when a given mass of absorbent is distributed through a large volume of diluent, the effect of a group of broad and faint lines, combined into one indistinguishable band in an instrument of low power, may not be more easily recognized than individual lines photographed with high dispersion; and whether possibly the peculiar conditions of the Martian atmosphere may not favor such a constitution of the Martian, as distinguished from the terrestrial bands?

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June 28, 1910

Addendum: The method of distinguishing Martian and telluric absorption lines by the velocity-shift of the Martian lines at quadrature is not new. It was not only explained and advocated by Dr. Percival Lowell, but was actually tested at the Lowell Observatory by Dr. Slipher in 1905, with the same negative result that Professor Campbell and Dr. Albrecht now obtain in repeating the experiment. A full account of the method and its results was published at the time in *Lowell Observatory Bulletin*, No. 17. That the method is not a delicate one is shown by its failure hitherto, when applied to Venus which possesses an undoubted atmosphere.

F. W. V.

QUOTATIONS

MEDICAL APPOINTMENTS AT VIENNA

THE half-hearted way in which the requests of Professor Strümpell for a modern outfit for his clinic were met by the authorities has had an unexpected result. The professor has "given notice" he will leave his post at once

to accept the appointment of clinical professor in Leipsic, as successor of Curschmann. To understand the sensational effect of this decision, one must understand that Strümpell had been won for Vienna only with great difficulty, and that promises had been made to him, which if fulfilled, would have enabled him to develop the third Vienna medical clinic according to his ideas. When he took over this present office a year and a half ago, as successor of Schrötter, he was received with the greatest pleasure by the students, who wanted to obtain a first-class teacher. Numerous bureaucrats and professors who thought it unnecessary to call another man from Germany were less pleased with his appointment. And von Strümpell always found that he was regarded as an outsider by many men. Among the students, however, he was much beloved and respected, and his patients always praised his kind and benevolent manners. Strümpell's idea was to make Vienna a Mecca of first-class clinical teaching. Instead of being assisted in every possible way by the authorities, he has been hampered all along. Naturally, he lost all pleasure and seized the first opportunity to leave a place where his abilities were not regarded as sufficient to warrant a little disregard of routine and red tape in monetary questions. His loss is another sign that science can not hope to progress if bureaucracy is prevalent.

The anatomic institute has been left without director by the death of Professor Zuckerkandl, but his successor will be soon appointed. Out of all the men able to fill the post, only three are actually eligible at present. They are Rabl, in Leipsic, Grosser, in Prague, and Tandler, in Vienna. It is the custom in this country, whenever a new medical teaching appointment has to be made, for the senate of the university to call the attention of the ministry of education to at least three men, named in order of preference. Very seldom is one man recommended as the first and only candidate. This has been the case just now, when Professor Tandler has been presented by the senate. He has been for the last four years *locum tenens* for Zuckerkandl, who was obliged by illness to abstain from all but very

slight work. Tandler has gained the esteem and the attention of students and scientists alike during the time he has been active in the anatomic department. It is not impossible, however, that some outsider will be appointed, for it has happened sometimes that influences more powerful than scientific requirements have been able to outweigh the recommendation by the senate.—*Journal of the American Medical Association.*

SCIENTIFIC BOOKS

The Mammals of Colorado: an account of the several species found within the boundaries of the State, together with a record of their habits and of their distribution. By EDWARD ROYAL WARREN, S.B., Director of the Museum of Colorado College. With three maps and a full series of illustrations reproduced from photographs taken from nature. New York and London, G. P. Putnam's Sons. The Knickerbocker Press. 1910. 12mo, pp. xxxiv + 300, 3 maps and 84 text-cuts. \$3.50.

In the matter of local manuals of the mammals of North America, the supply is far behind that available for birds. Of the half-dozen that have thus far appeared, the latest, Mr. Warren's "*The Mammals of Colorado*," is easily one of the best. It is thoroughly scientific in spirit, and yet not too technical for a popular hand-book. The large number of text illustrations comprise one or more views of a skull of some representative species of nearly every genus, with many others from life, showing the characteristic external features of the species, while others illustrate the nests of various rodents, and the work of the beaver. The maps include a contour map of the state, and maps showing the distribution of the prairie dogs and of three species of striped squirrels. The introduction contains instructions for skinning and measuring mammals for scientific purposes, a chapter on the life zones of Colorado, and ten pages of bibliography. The book appears to have been first projected by Mr. William Lutley Sclater, the author's predecessor as director of the Museum of Colorado College, who, on being